

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Carbon Pricing in Organized  
Wholesale Electricity Markets**

**Docket No. AD20-14-000**

**Pre-conference Comments from  
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**Introduction**

As one of a diverse group of petitioners who asked the Commission to host this conference, Vistra appreciates the Commission's willingness to engage in this discussion about carbon pricing in wholesale electricity markets. We recognize that the staff and Commissioners expend a great deal of effort when the Commission holds a technical conference and commend the Commission for making this topic a priority. Finally, I appreciate the opportunity to participate in this conference and look forward to a thoughtful discussion.

By way of introduction, Vistra is an integrated competitive electric generation and electric and natural gas retail company. We own approximately 39,000 MW of generation and operate in six of the seven competitive ISO/RTO markets. We offer over 250 competitive retail electricity and natural gas products in 20 states and the District of Columbia with over 50 green offerings. Vistra owns and operates a diverse set of generation with an emphasis on natural gas, nuclear, renewables, and batteries. Overall 60% of Vistra's electric generation is covered by retail electricity load with 75% at the peak in ERCOT, our biggest market. Our strategy is built on integrated operations, strong balance sheet, low cost, and sophisticated business capabilities to optimize a diverse set of assets and businesses. We cannot execute our strategy without a fair and even playing field, and FERC has historically done a good job of ensuring just that.

Last October, Vistra announced a goal to achieve a greater than 50% reduction in CO<sub>2</sub> equivalent emissions by 2030 with a long-term objective to achieve a greater than 80% reduction in CO<sub>2</sub> equivalent emissions by 2050, each as compared to a 2010 baseline, with aspirations of reaching net-zero carbon emissions by 2050, assuming necessary advancements in technology and supportive market constructs and public policy. Vistra is hosting a virtual investor event on September 29 and plans to announce an update to these targets on that date. We believe carbon pricing, specifically a national, economy-wide carbon price is one component of the needed market and public policy changes to reach our aspirational goal. As a result, we are Founding Members of the Climate Leadership Counsel (CLC), an international policy institute that advocates for a national fee on carbon. The CLC framework also adopts the concept of a dividend back to consumers for the increase in costs from a carbon price and a carbon border

adjustment to create an even playing field for U.S. companies and to encourage other countries to contribute to decarbonization.

**Carbon pricing can reduce the tension between state and federal authority and allow ISOs, stakeholders, and the Commission to focus on the reforms needed to facilitate the transition to lower carbon emitting resources while maintaining reliability**

Vistra views this conference as a natural follow-on to the Commission's May 2017 conference that sought to reconcile the competitive market framework with the increasing interest by states to support particular carbon emission free resources or technologies. The discussion during the May 2017 conference suggested five paths forward. At one extreme, the state-supported resources would either face limited or no mitigation. At the other, state-supported resources that are not economic absent state support would be fully mitigated. In the middle, state environmental policies would either be achieved through market-based mechanisms or would be accommodated through a market design that attempts to incorporate state-supported resources into the capacity market, while minimizing their distortive impacts. At the time, while there was a general sense that the achieving state environmental goals within the wholesale market was by far the best approach for reconciling the competitive market with state environmental goals, the view was that such approach was not politically attainable. As a result, most attention since the conference has gone to the other paths. More recently though, there have been discussions about carbon pricing occurring in many regions and states, as noted in the Petition for Technical Conference.

Vistra believes that the experience over the last three and a half years suggests that truly sustainable market design requires a means to achieve state environmental goals within the wholesale market. There are really only two options for achieving state environmental goals within the wholesale market: carbon pricing or a clean energy standard (CES). Either program would ideally be national but should at least be regional. Vistra believes carbon pricing is the clearly superior option among the two, but believes the discussion likely needs to include both given the support clean energy standards enjoy.

Moving state environmental goals into the market is necessary to reduce the tension between state and federal authority. Vistra believes a successful carbon price would eliminate the need for any state resource or technology preference. Even if carbon pricing does not entirely replace state preferences, the additional revenue zero emitting resources would earn through the energy market would reduce the impact of any remaining mitigation and thus make it less relevant. In short, carbon pricing is an approach that can further state environmental goals while preserving the benefits of competitive electric energy markets.

In the absence of meaningful action on either carbon pricing or CES, discussions have begun on other market reforms that could reshape the resource mix. For instance, there are a variety of proposals that would fundamentally change the capacity market to ensure that carbon emission

free resources are selected.<sup>1</sup> These discussions are well intentioned and typically thoughtful. Nonetheless, it is Vistra's view that discussions about such reforms will ultimately be unsatisfying and unsuccessful because they attempt to accomplish in very indirect ways what carbon pricing could accomplish directly. To be sustainable, competitive markets must incorporate both environmental and reliability requirements. Doing so will yield the lowest cost set of resources and technologies that jointly produce the greatest emission abatement while maintaining reliability. Failing to do so will sacrifice emission abatement, reliability and/or cost. Further, discussing second or third best alternatives will crowd out other market reform discussions that can focus on system needs during and through the low carbon transition.

We recognize that the Commission is not seeking input on whether or not carbon pricing is a good idea. Nonetheless, for the foregoing reasons we commend the Commission for holding this technical conference because addressing the issues in question are critical to moving the industry forward.

### **A national, economy-wide carbon price would require virtually no change to wholesale markets**

As mentioned, Vistra supports a national, economy-wide carbon price. If the federal government were to adopt such a carbon price, the Commission would have very little to do to implement it. The carbon price would be incorporated into generator offers like any other costs; day ahead schedules, real-time dispatch and LMPs would change accordingly; and the associated change in net energy revenues would be incorporated into capacity market offers and capacity market outcomes would then also change. Vistra does not believe a carbon price alone would present any unique challenges to operating the grid reliably, assuming the carbon regime is designed to limit the potential to completely exhaust the supply of allowances.<sup>2</sup>

A meaningful carbon price will change the dispatch stack and change the resource mix over time. This may mean the system loses some flexible dispatchable resources. Several of the Commission's price formation reforms served to better value flexibility such that those reforms will become even more important as the resource mix transitions. If too many flexible resources exit the market and are not replaced by new flexible resources, there will be a need for additional market rule changes to appropriately value flexibility. But such market design changes are right in the Commission's wheelhouse. As noted above, one benefit of incorporating environmental goals into the market is that the conversations we currently have to reduce the tension between state and federal policy can be used productively on other needed market reforms.

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<sup>1</sup> This is not to suggest that there may not be important issues about resource adequacy market design to discuss. However, those discussions should focus on how resource adequacy needs are determined and met.

<sup>2</sup> If the carbon regime allowed the supply of allowances to become completely exhausted, some resources may not be permitted to operate. That could complicate balancing the system to maintain reliability. Most emission allowance regimes allow banking and/or borrowing of allowances such that the supply is unlikely to be completely exhausted.

Vistra believes carbon pricing alone can produce the investment signal needed to support new carbon emission free resources, but appreciates that some may desire a backstop mechanism like a clean energy standard to provide a measure of assurance. We would expect meaningful carbon pricing to be incorporated into forward energy prices, thus providing enhanced ability to hedge the energy market revenue that would support new entry. As has been discussed in the context of energy-only markets, there may be some concern that reliance on volatile energy price signals alone to support entry may raise the cost of capital or otherwise require heavily capitalized firms. There may also be concerns that the response to energy price signals will not yield the amount of new carbon emission free resources that policy makers believe is needed to meet long-term environmental goals. If the carbon price is the result of a cap and trade program, the carbon cap would ensure that carbon emissions do not exceed a predefined level.<sup>3</sup> If the carbon price is established at a specified value, then emissions may fluctuate above or below the target emissions level. We have addressed similar concerns that energy prices alone may not fully address resource adequacy considerations by adding capacity markets to serve as an additional layer of assurance. Similarly, clean energy standards may be desired to backstop the investment signal that comes from carbon pricing. While a carbon cap would ensure that carbon emissions are limited to a predefined level<sup>4</sup>, investor confidence that the carbon price will produce sufficient revenue to support new investment may be undermined by, for instance, concerns that a carbon price program will be relaxed in the future if the carbon price gets too high or achieves greater carbon emission reductions than targeted. In the context of energy markets, there is a similar concern that out-of-market actions may undermine shortage price signals that would otherwise support new investment. To extend the analogy, the carbon price would likely send more granular price signals to target carbon emission free resources that best displace carbon emitting resources just as good energy market price formation sends more granular price signals for attributes like resource flexibility. That is, ideally the carbon price would be the binding constraint that drives new entry. Nonetheless, the desire for a backstop to support investor confidence or to provide a level of assurance that the carbon emission reduction target is met is understandable.

### **Regional carbon pricing is a step in the right direction, but will require more action by the Commission**

In the absence of a national, economy-wide carbon price, Vistra supports regional carbon pricing regimes as a step in the right direction. Leakage represents the biggest technical hurdle to achieving a regional carbon price. But, Vistra is actively analyzing approaches to address this challenge, including a preferred approach outlined below.

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<sup>3</sup> If the cap and trade system allowed banking and borrowing, carbon emissions may exceed the cap level in a particular year, but would not exceed the aggregate cap over the life of the program. Vistra does not necessarily support a cap and trade system relative to a straight price on carbon emissions.

<sup>4</sup> A set price on carbon emissions would likely be calibrated based on the level of carbon emission reductions desired.

Where a regional carbon price applies to an entire ISO/RTO footprint, the carbon price should work within the wholesale electricity markets very similar to how a national carbon price works. The primary complication is that there may be a need to account for carbon price differences when transacting at the ISO seam to avoid importing energy that is cost competitive only because there is no carbon price in the exporting region. Opportunities for trade between ISOs/RTOs are limited by the transfer capability between the ISOs and are notoriously difficult to optimize. As a result, leakage is a concern but is more a secondary consideration.

Where the regional carbon pricing does not apply uniformly across an ISO/RTO footprint, the concerns about leakage are more pronounced because internal ISO/RTO dispatch is very good at optimizing to find the lowest cost set of resources subject to transmission constraints that are actively managed by the dispatch. As a result, cost differences that are the result of differences in carbon prices will be reflected in dispatch. In the PJM discussions, there appear to be three concerns states have identified about the uneven application of carbon pricing. First, there is a concern that the environmental benefits of regional carbon pricing will not be fully realized as a lower emitting resource that is subject to carbon pricing is displaced by a higher emitting resource that is lower cost only because it is not subject to a carbon price. Second, but related, there is a concern about placing a state's generation at a competitive disadvantage with no overall environmental benefit. This occurs, for instance, when a generator in a state with carbon pricing is displaced by an otherwise identical resource that is located in a state that does not price carbon. Third, states without carbon pricing are concerned that changes to the cost of generators in carbon pricing states will increase costs to consumers in states without carbon pricing. These concerns originate from the fact that an ISO/RTO dispatches across its entire footprint.<sup>5</sup> As a result, changes in cost resulting from carbon pricing quickly propagate through the dispatch and can not easily be isolated to a single state or carbon pricing region.

Most efforts to address internal leakage are likely to be only partially successful because they rely on thinking of the ISO/RTO footprint as sub-divided into a carbon pricing region and a non-carbon pricing region and then trying to determine when a resource in one of those regions should be deemed to serve load in the other region. In this context, one needs to view the carbon pricing region as either "importing" or "exporting" to the non-carbon price region. That determination is inherently a fiction because the ISO dispatches all generation to serve all load. Essentially, all generation is in the same soup.

That does not mean leakage is not a real concern, because there should be a recognition that sub-regional carbon pricing assigns new costs to the consumers in those states whose policies did not driven them, and because the dispatch will not effectuate carbon reductions to the extent carbon pricing states expect. PJM's modeling for a small RGGI footprint suggests that RGGI actually increases emissions (because high carbon producing resources in non-RGGI states become favorably cost competitive with and are dispatched more frequently than, lower carbon

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<sup>5</sup> One could imagine addressing leakage in PJM by dispatching the RGGI states separate from the non-RGGI states and allowing some between region trade with a border price adjustment. Doing so would not only be complicated, it would also lose the network benefits of dispatching over the footprint because options for redispatch to manage congestion would be limited. Nonetheless, this system would insulate RGGI states from leakage. We are not suggesting this alternative, but think it provides useful context for other alternatives.

producing resources in RGGI states) with cost increases to non-RGGI states. However, PJM's modeling shows that emissions leakage decreases and cost leakage increases as the RGGI footprint increases. Nonetheless, some amount of emission leakage will occur until the RGGI footprint covers PJM. Notably, cost leakage only disappears once the RGGI footprint covers PJM; not because costs do not increase but because all states within PJM have decided that electricity costs should internalize carbon emission costs. While costs may increase, the entire PJM footprint will be jointly co-optimized to maintain reliability and reduce carbon emissions at least cost. Further, PJM's markets will be sending a consistent, transparent entry and exit signal. Prior to the point at which RGGI fully covers the PJM footprint, whatever emission leakage remains could create a disincentive for other states to join RGGI, both because non-RGGI states' generators enjoy a competitive advantage and any leakage that remains after a state joins RGGI reduces the potential environmental benefit. Thus, addressing leakage is important, though we will need to accept that addressing leakage through internal border adjustments will likely never be done with precision.

### **Leakage would ideally be addressed through a method that mimics a regional approach if possible**

Vistra's preferred approach to address leakage would be to apply carbon pricing across the entire ISO footprint and use transfer payments between RGGI states and non-RGGI states to make the non-RGGI states indifferent and reflect each state's choice about whether or not to join RGGI. We view this as ideal, though we are still working through the proof of concept.

This approach raises a number of important questions

- Would states ever agree to something like this? We believe this question is singularly important, but would be informed by understanding how this approach would work.
- What are the possible sources of money to fund the transfer payments?
  - Carbon emission payments by non-RGGI state generators would need to be collected to avoid creating bidding incentive issues. This is a possible source of funds.
  - Carbon allowance proceeds collected in RGGI states are a possible source of funds. RGGI states use some proceeds to pursue investment in carbon reduction. It may be that funding carbon emission reductions in other states is more cost effective.
- What does it mean to make a non-RGGI state indifferent?
  - One may want to offset the additional cost non-RGGI state consumers pay by applying RGGI to the entire footprint rather than in just the RGGI states.
    - As with any mechanism that returns funds to consumers, this may undermine incentives for consumers to reduce consumption to avoid carbon costs. Ideally the transfer payments would be structured to avoid distorting marginal incentives.

- One may also want to offset lost revenues by non-RGGI state generators due to application of carbon pricing. This is complicated by the fact that some non-RGGI state generators may see increased revenues.
- Does such a regime change a state's incentive to join RGGI? If so, how can that be addressed.
- Are there enough sources to fund the transfer payments?

As noted, this is currently an idea that Vistra is exploring quantitatively. Even if it would not work in practice, it could serve as an ideal against which other ideas could be compared.

### **Commission likely has a role to play in any leakage proposal**

Regardless of how leakage is addressed, the Commission will likely need to play a role approving the design. Any proposal to address leakage will involve implicitly applying carbon pricing to some generator in a non-carbon price region. To this amateur lawyer, the transaction in question appears to be a sale of electricity in interstate commerce. As a result, the Commission will need to address these proposals under its traditional authority. The Commission can still take federal-state comity into account.

This is not a new issue for the Commission. It approved the border adjustment pricing between the Western Energy Imbalance Market and CAISO. Future leakage proposals, like the one Vistra favors, simply extend the logic the Commission used to approve the CAISO-EIM border adjustment. Whether it extends that logic too far will be left to the Commission. In this spirit, we encourage the Commission to pay attention to these issues. There are likely a variety of approaches that could garner some level of stakeholder approval. Vistra would encourage the Commission to be flexible as it approaches these issues and keep efficiency in mind.

### **Conclusion**

In closing, Vistra thanks the Commission for hosting this technical conference. We believe conversations around regional carbon pricing are critical to decarbonizing the electric system in a manner that maintains reliability at least cost. Making use of within market mechanisms to address carbon emissions will provide the time and focus needed to consider other market changes as the electric system decarbonizes. Along the path to a national or regional carbon price, we will need to find creative ways to address the challenges that are inherent in sub-regional carbon pricing. The Commission's support and attention will be needed throughout this process.